

Serial No. 10/650,212 NOV 27 2007 Page 2

IN THE CLAIMS:

1. (Currently Amended) An imaging system comprising:
first means mounted on a mobile platform for receiving reflected beams of electromagnetic energy;
second means for combining the reflected beams with reference beams to form a plurality of interference patterns; and
third means for adjusting the location of individual interference patterns of the plurality of interference patterns to compensate the interference patterns for motion of the mobile platform ~~motion compensating the plurality of interference patterns~~ and for recording the plurality of motion compensated interference patterns.
2. (Currently Amended) The invention of Claim 1 wherein said third ~~second~~ means includes means for digitally storing holographic images.
3. (Currently Amended) The invention of Claim 2 wherein said holographic images are the interference patterns.
4. (Previously Presented) The invention of Claim 1 wherein said third means includes a camera.
5. (Previously Presented) The invention of Claim 1 wherein said third means includes a one-dimensional detector array.
6. (Previously Presented) The invention of Claim 1 wherein said third means includes a two-dimensional detector array.
7. (Previously Presented) The invention of Claim 1 further including means for reading said interference patterns.

Serial No. 10/650,212 Page 3

8. (Previously Presented) The invention of Claim 7 wherein said means for reading said interference patterns includes means for performing a time delay integration.

9. (Previously Presented) The invention of Claim 1 further including means for transmitting beams from said platform to said target.

10. (Currently Amended) An imaging system comprising:
structure first-means mounted on a moving platform for receiving reflected beams of electromagnetic energy at a physical aperture of said imaging system;
structure second-means for recording intensity and phase interference patterns ~~already~~ formed by the said reflected beams and by reference beams; and
~~third~~ means mounted on the moving said platform for relocating ~~redirecting~~ said interference patterns ~~to said-means-for~~ relative to the recording structure to compensate for movement of the moving platform.

11. (Previously Presented) The invention of Claim 10 wherein said intensity and phase interference patterns are holographic interference patterns.

12. (Currently Amended) The invention of Claim 11 further including structure ~~means~~ for transmitting beams from said platform to a ~~said~~ target.

13. (Currently Amended) The invention of Claim 12 wherein the transmitting structure ~~said first-means~~ includes a laser.

14. (Currently Amended) The invention of Claim 12 wherein said received beams are reflections from the target of said transmitted beams ~~from said target.~~

Serial No. 10/650,212 Page 4

15. (Currently Amended) The invention of Claim 14 further including structure ~~means~~ for providing [a] reference beams.

16. (Previously Presented) The invention of Claim 15 further including means for causing said reference beams and said received beams to interfere at an optically relayed aperture plane and thereby provide said holographic interference patterns.

17. (Previously Presented) The invention of Claim 16 further including means for controlling the phase of said reference beams relative to said received beams.

18. (Previously Presented) The invention of Claim 17 further including means for controlling the phase of said reference beams relative to said received beams to compensate for nonlinear motion of said platform during a predetermined time interval.

19. (Previously Presented) The invention of Claim 11 further including means for reading said holographic interference patterns.

20. (Currently Amended) The invention of Claim 10 wherein the receiving structure ~~first means~~ includes a focusing lens.

21. (Currently Amended) The invention of Claim 10 wherein the recording structure ~~said second means~~ includes a recording medium.

22. (Original) The invention of Claim 21 wherein said recording medium is a holographic recording medium.

23. (Original) The invention of Claim 22 wherein said holographic recording medium is re-recordable.

Serial No. 10/650,212 Page 5

24. (Currently Amended) The invention of Claim 10 wherein the relocating said ~~third~~ means includes a scan mirror.

25. (Currently Amended) The invention of Claim 24 wherein the relocating said ~~third~~ means includes means for controlling said scan mirror.

26. (Currently Amended) The invention of Claim 25 wherein said means for controlling includes a controller and the relocating said ~~third~~ means includes means for providing platform velocity information to said controller.

27. (Original) The invention of Claim 26 wherein said means for controlling further includes means for providing sensor line of sight information.

28 - 29. (Canceled)

30. (Previously Presented) A holographic synthetic aperture ladar system comprising:

a laser mounted on a mobile platform and adapted to output a beam of coherent energy;

an optical arrangement mounted on said platform for directing said beam to a target and for receiving a reflection therefrom;

means for combining the reflection and a reference to form an interference pattern;

a scan mirror in optical alignment with said optical arrangement;

a holographic optical storage medium; and

a controller for directing said scan mirror to adjust a position of said interference pattern on said medium in response to motion of said platform relative to said target.

31. (Currently Amended) An imaging method comprising the steps of:
receiving a beam of electromagnetic energy on a moving platform;

Serial No. 10/650,212 Page 6

combining the received beam with an offset reference beam to form an interference pattern;

recording the interference pattern; and

relocating ~~compensating~~ said recorded interference pattern to compensate for motion of said platform relative to an external reference.

32. - 42. (Canceled)

43. (Currently Amended) The imaging system of Claim 1 wherein the third ~~second~~ means includes a moveable scan mirror.

44. (Currently Amended) The imaging system of Claim 1 wherein the third ~~second~~ means includes a computer.